

Date: Tuesday, 10/02/2009 7:19:15 AM
 User: Chantal Lavoie

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	ROUND BILLET 17-4
Job Number :	45659		
Estimate Number :	10041		
P.O. Number :		Part Number :	D6104007
This Issue :	10/02/2009	S.O. No. :	
Prsht Rev. :	NC	Drawing Number :	D6104 REV B
First Issue :	//	Project Number :	N/A
Previous Run :	41967	Drawing Revision :	B
Written By :		Material :	
Checked & Approved By :		Due Date :	24/02/2009
Comment :	Est. A: 01.05.08 New Issue EC	Qty:	15/30 Um: Each

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	PG	PURCHASING
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Comment: PURCHASING

Issue P/O: 8182

C209/02/11

a) Description: S.S round billet

b) Ø4.50" x 5.10" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

e) One blank makes 2 parts

f) Material certification required

(15)

2.0	D6104007P	17-4 SS Roundbar 4.50"OD
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Comment: Qty.: 1.0000 Each(s)/Unit Total : 30.0000 Each(s)
 17-4 SS Roundbar 4.50"OD

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

C209/02/11 (15)

4.0	QC6	DIMENSIONAL CHECK
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Comment: DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

mk 09/03/20 (15)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 10/02/2009 7:19:15 AM
User: Chantal Lavoie

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: ROUND BILLET 17-4

Job Number: 45659

Part Number: D6104007

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

09/2/2010 ml 09/03/20

(15)

6.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/03/20

(15)

Job Completion



U 09-03-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



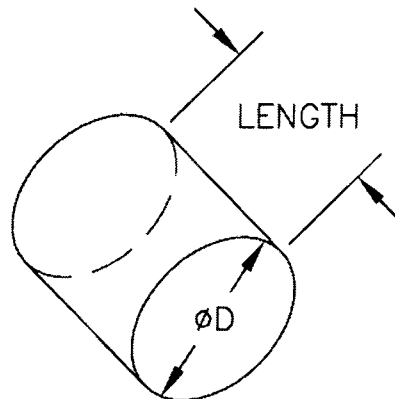
DESIGN 14	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29

SPECIFICATION CONTROL DRAWING

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. B45659



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
→ D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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**Castle Metals®**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 1

No de Formulaire d'Emballage / Pack Slip No: 2133818

Expédié de / Ship From: Castle Metals - Aerospace MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Vendu à / Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Expédié à / Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Livré à / Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date d'expédition / Date Shipped	F.O.B.	Modalités de transport / Freight Terms		Transporteur / Carrier	N° du Bon de connaissance / BOL No	N° de livraison / Delivery No	
23-FEB-09	ORIGIN	Prepaid		MANITOULINE	2638-2	2133818	

Détails d'expédition / Shipment Details	Destination finale / Final Destination Branch - MON
--	--

N° de commande / Order No	N° de ligne / Line No	N° d'article / Item No	Description		Qté livrée / Shipped Qty
170748	1	14998.MO	4.5000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN ()		15 PCS
N° de bon de commande / Purchase Order No		Nbre de pièces / Part Number	Qté commandée / Ordered Qty	Qté expédiée / Shipped Qty	Solde à livrer / Backorder Qty
8182			15 PCS	15 PCS	
Détails / Details					
	Usine / Mill		No de coulée / Heat Number	Code méc / Mech Id	Qté expédiée / Shipped Qty
			G10119		15 PCS

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Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Ce matériel a été reçu et inspecté par

This material has been received and inspected by:

Date:

CERTIFICATE OF TESTS
CERT SERIAL# 000494972

TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
P.O. Box 2498
Martinsville, SC 29551 Tel. 843.335.7540 Fax. 843.335.6465

ABNAHMEPRUEFZEUGNIS
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03/29/05

CUSTOMER/BESTELLER/CLIENT

SELLER/VERKÄUFER/VENDEUR PAGE 2 OF 2

A.M. CASTLE & CO
3400 N WOLF RD
FRANKLIN PARK ,IL 60131

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATE/DATE	WEIGHT/GEWICHT/POIDS
10-10294-01	W71466	03/29/05	5085

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE:
CAPABILITY

G10119

900 F (482 C), 01 HR

AIR COOL

YIELD STRENGTH, (0.20 %) KSI(MPA)
TENSILE STRENGTH, KSI(MPA)
ELONGATION IN 2.00", %
REDUCTION OF AREA, %
HARDNESS , HB

195.0 (1344)
205.0 (1413)
14.0
47.0
406.0

(CONVERTED FROM TENSILE STRENGTH)

REDUCTION RATIO: 4:1

SOLUTION ANNEALED - 1900 F, 1 HOUR - RAPID COOL

MATERIAL WAS MELTED AND MANUFACTURED IN THE USA.

WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE
PURCHASE ORDER AND SPECIFICATION REQUIREMENTS.

STEPHANIE E. MCCULLUM
QUALITY ASSURANCE ENGINEER
CARPENTER TECHNOLOGY CORPORATION

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08-25-'05 12:07 FROM-

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERTIFICATE OF TESTS
CERT SERIAL# 000494972



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
 P.O. Box 2498
 Marsville, SC 29551 Tel. 843.335.7540 Fax. 843.335.6465

03/29/05

CUSTOMER/RESELLER/CLIENT

A.M. CASTLE & CO
3400 N WOLF RD
FRANKLIN PARK, IL 60131

SELLER/VERKÄUFER/VENDEUR PAGE 1 OF 2

HVL

CUSTOMER ORDER NO./BESTELL.-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
10-12294-01	W71466	03/29/05	5085

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: G10119

PRODUCT DESCRIPTION: TYPE 17-4 CMO SOLUTION ANNEALED ROUGH TURNED
 PART NUMBER: IAC 5112

SPECIFICATION: CASTLE 3174-113 CAP OF COND. H900 REV 7 (08/27/03)
 AMS 2303 REV E (10/ /01)
 AMS 5643 REV Q (01/ /03) (UNS S17400) (AISI 630)
 ASTM-A564-04
 ASME-SA564 2001 EDITION

SIZE 4.500000 IN. (114.30 MM) RD BAR

PRIMARY HEAT CHEMISTRY (WT%):

C	MN	SI	P	S	CR
0.030	0.84	0.37	0.022	0.027	15.32
NI	MO	CU	N	CB	TA
4.26	0.32	3.79	0.033	0.24	0.01
CB+TA					
0.25					

CASTLE C.M.O.
 NO WELD REPAIR.
 MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE
 CONTAMINATION.
 THIS HEAT MELTED BY THE ARC/AOD PROCESSES

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HB - 340

(MIDRADIUS)

MAGNETIC PARTICLES: FREQUENCY = 0 / SEVERITY = 0

MICROSTRUCTURE - FERRITE .59%

CASTLE METALS FP
DATE REC'D 8/05 IAC 14998
APPROVED BY: REC.

CASTLE METALS-CLV
 DATE REC'D 4-5-05
 REC'D BY 48200
 I.A.C. # 5782
 APPROVED BY [Signature]

CONTINUED ON NEXT PAGE

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